Washington State Department of Health

ELABORATIONS

News and Issues for Washington's Clinical Laboratories

Volume VIII Issue 4 April 2003

Interim Laboratory Biosafety Guidelines for Handling and Processing Specimens Associated with Severe Acute Respiratory Syndrome (SARS)

by Gail Neuenschwander

NOTE: This is the latest information from the Centers for Disease Control and Prevention (CDC) as of **4-02-03** for handling and processing specimens associated with SARS. Since SARS information is updated frequently, please refer to the following website for the most recent information: http://www.cdc.gov/ncidod/sars.

Since the etiology of SARS remains unknown and due to the potential highly infectious nature of this agent, the CDC is recommending that specimens from possible cases of SARS be handled with **enhanced precautions**. The enhanced safety precautions include:

- All specimens from suspected SARS patients should be labeled as **"possible SARS"** even though this is contrary to current Standard Precautions (previously Universal Precautions) recommendations.

- **All** specimen manipulation that could create aerosols, including routine serology, chemistry, and hematology, should be handled in a certified Class II biological safety cabinet.

- If your facility IS NOT equipped with a certified Class II biological safety cabinet, you should send **all** specimens from possible SARS patients to a facility that is so equipped.

- The latest information from CDC regarding safety precautions for handling and processing specimens associated with SARS, released on April 2, 2003, is reproduced on pages 4 and 5 for your reference. It is worth noting again that since CDC updates their information on SARS frequently, refer to this wesite often for the most current information: http://www.cdc.gov/ncidod/sars.

- Effective and timely communication between clinical and laboratory staff is essential in minimizing the risk incurred in handling specimens form patients for whom SARS is suspected.

For the latest information about SARS in Washington State, refer to the Washington State Department of Health website at http://www.doh.wa.gov/sars.htm.

NOTE: If you have questions regarding possible SARS patients, contact your local county health jurisdiction.

Inside This Issue

Practice Guidelines

The following practice guidelines have been developed by the Clinical Laboratory Advisory Council. They can be accessed at the following website:
www.doh.wa.gov/lqa.htm

- Anemia
- ANA
- Bioterrorism Event Mgmt
- Bleeding Disorders
- Chlamydia
- Diabetes
- Group A Strep Pharyngitis
- Hepatitis
- HIV
- Intestinal Parasites
- Lipid Screening
- Point-of-Care Testing
- PSA
- Renal Disease
- STD
- Thyroid
- Tuberculosis
- Urinalysis
- Wellness

Bioterrorism: Safety Concerns in the Laboratory

by Candace Bunch (Bioterrorism Training)

Safety should be the first priority for anyone working with microorganisms. We all know that we can acquire symptoms from the very organism we are working with. There are many opportunities for Laboratory Acquired Infections or LAI to occur and this is the first in a series of articles exploring these.

Aerosols
Did you know that the generation of aerosols is a primary mode of LAI? Microscopic droplets can ride the air currents throughout a room, even a building and enter through the lungs. Other droplets may land on the nearest surface contaminating your pen, your paperwork and even your computer keyboard. In the latter case, transmission occurs through the mouth or eyes due to hand/surface contacts.

So when do we create an aerosol? Spills and splashes are the most obvious, but what about during a gram stain?

Loops: The loop itself can contribute to aerosol creation. Plastic loops are recommended instead of wire loops because they are completely closed, do not vibrate, are more rigid than wire and do not need flaming because they are disposable.

Flaming: Wire loops require flaming, and flaming in a Bunsen burner does create aerosols. Microincinerators are strongly recommended to avoid this. In addition, hot loops plunged into a culture will create aerosols contaminating the surrounding area or the neck of the container and subsequently the cap or plug. Thus, loops must be allowed to cool before use.

Microscope Slide Prep: Small droplets are dispersed when a loopful of either a liquid culture or a suspension from a solid culture is spread on a slide. Studies utilizing Salmonella and Shigella have repeatedly shown the recovery of organisms from the bench top after slide preparations.

Final Thoughts: It is strongly suggested that gram staining and culturing be performed in a biosafety cabinet or alternatively, a fume hood or glove box. There are small and even portable options for these protective devices. Your next unknown specimen may be an agent of bioterrorism. Just as the airports have increased their awareness and safety, so must clinical laboratories. Our world has changed and the life you save this time may be your own.

"ELABORATIONS" is a free monthly publication of the Washington State Department of Health (DOH) Public Health Laboratories (PHL) and Office of Laboratory Quality Assurance (LQA).

Secretary, DOH: Mary Selecky
Health Officer: Maxine Hayes, MD, MPH
Director, PHL: Romesh Gautom, PhD
Program Manager, LQA: Gail Neuenschwander
Editor: Leonard Kargacin (206) 361-2804
Circulation: Leonard Kargacin (206) 361-2804

Comments, letters to the editor, information for publication, and requests for subscription can be directed to:
"ELABORATIONS"
Washington State Public Health Labs
1610 NE 150th Street
Shoreline, WA 98155

e-mail address: leonard.kargacin@doh.wa.gov

NOTE: Letters to the editor may be published unless specified otherwise by the author.

Website addresses:
DOH home page: http://www.doh.wa.gov
LQA home page: http://www.doh.wa.gov/lqa.htm
PHL home page:
http://www.doh.wa.gov/EHSPHL/PHL/default.htm

Shipping & Handling of Biohazardous Materials Training Class

The Shipping and Handling of Biohazardous Materials training class is scheduled for **May 6, 2003** from 9:00 a.m. - 4:00 p.m. at the Washington State Public Health Laboratories in Shoreline. This course is designed for laboratory testing personnel, supervisors, directors and consultants of laboratories in physician offices and small hospitals who are responsible for shipping cultures and patient specimens. It will include an overview of all regulations governing transportation of biohazardous materials, proper marking and packaging and workshop exercises.

For registration information or questions about this class, call (206) 361-2820 or e-mail PHL.training@doh.wa.gov.

Laboratory Personnel Survey 2003

by Leonard Kargacin

The Clinical Laboratory Advisory Council established the Laboratory Personnel Shortage Workgroup in 1999. The Workgroup is composed of the program directors of the six clinical laboratory training programs in Washington, representatives from the laboratory professional organizations in the state, and members from the Advisory Council. The Workgroup's charge is to develop strategies to address the clinical laboratory personnel shortage in Washington.

One of the first Workgroup projects in 1999 was conducting a survey of the laboratories in our state to determine to what extent the shortage existed in Washington. The results of the survey can be found in the June 2000 issue of the *Elaborations* newsletter. The survey did establish that there were laboratory personnel shortage problems in Washington, and provided the Workgroup with information it could use in trying to address the shortage. The survey spawned several projects and helped establish several invaluable contacts with the Washington State Hospital Association (WSHA), the Area Health Education Councils (AHEC), Washington Science Teacher Association (WSTA), and the Washington Health Occupation Education Association (WHOEA).

The survey data obtained in 1999 have been valuable in documenting the shortages in the clinical laboratory in Washington, and has placed our profession as a leader in confronting the healthcare personnel shortage by developing strategies to ameliorate the shortage. However, it is necessary to update the survey data from time to time to determine how the shortage is affecting the clinical laboratory in Washington.

2003 Survey: To study the current status of the shortage in Washington, the Clinical Laboratory Personnel Shortage Workgroup will conduct another survey of the laboratories in Washington. The aim of the survey is to obtain current data about the shortage as well as to obtain information on personnel recruitment and retention issues. The survey will be mailed to laboratory managers throughout the state in the next several weeks. We encourage you to participate in this critical process by completing the survey. The data obtained through the surveys will continue to be used to address the shortage in Washington and will be shared in a future issue of Elaborations. All of the Washington laboratory professional organizations encourage you to participate!

Accomplishments of the Workgroup:

- Developed a Laboratory Professions Careers recruitment brochure
- Established a laboratory careers website (www.labcareers.org)
- Developed a brochure titled "What Career Choices Do I Have With a Science Major?"
- Presented informational sessions for science teachers at the WSTA State meeting and at the Washington State Society for Clinical Laboratory Science Spring and Fall meetings since 2000
- Established a close working relationship with the WSHA and the Washington AHECs
- Performed statewide salary survey
- Presented the accomplishments of the Workgroup at the National Clinical Laboratory Educators Conference in 2002
- Published updates of Workgroup activities in *Elaborations* as well as the state professional organizations newsletters in Washington
- Published articles on articulation options to obtain professional certification and on hiring foreign trained laboratory professionals
- Increased enrollment in Washington training programs
- Dana Duzan, member of the Clinical Laboratory Advisory Council, was appointed as a member of the Washington Healthcare Personnel Shortage Legislative Task Force representing the Allied Health Professions.

2003 Personnel Shortage Survey Forms

The 2003 Laboratory Personnel Shortage Survey questionnaires will be mailed out shortly. Please take the time to fill out this important material!

Centers for Disease Control and Prevention

Interim Laboratory Biosafety Guidelines for Handling and Processing Specimens Associated with Severe Acute Respiratory Syndrome (SARS)

April 2, 2003, 3:00 PM EST

Background: The Centers for Disease Control and Prevention (CDC) and the World Health Organization have received reports of patients with Severe Acute Respiratory Syndrome (SARS) from various international and domestic sources. The cause of these illnesses is unknown and is being investigated, but current findings strongly suggest a viral etiology. Up-to-date information and CDC guidance documents with respect to SARS can be found at http://www.cdc.gov/ncidod/sars/. Effective and timely communication between clinical and laboratory staff is essential in minimizing the risk incurred in handling specimens from patients for whom SARS is suspected. Specimens from patients with suspected SARS should be labeled accordingly and the laboratory should be alerted to insure proper specimen handling. Listed below are interim biosafety guidelines for handling these specimens:

A. Blood Specimens for Routine Serology, Chemistry and Hematology:

These specimens may be handled using Standard Precautions (previously Universal Precautions). Laboratory workers should wear protective equipment, including disposable gloves, laboratory coats, eye protection and a surgical mask, or face shield to provide a barrier to mucosal surface exposure. Centrifugation should be carried out using sealed centrifuge cups or rotors that are loaded and unloaded in a biological safety cabinet.

B. Specimens for Microbiological Analysis

1. The following activities may be performed in Biosafety Level (BSL) 2 facilities using BSL-2 practices as described in the CDC/NIH Biosafety in Microbiological and Biomedical Laboratories manual (http://www.cdc.gov/od/ohs/biosfty/bmbl4/bmbl4toc.htm):

a. Pathologic examination and processing of formalin-fixed or otherwise inactivated tissues.

b. Molecular analysis of extracted nucleic acid preparations.

c. Electron microscopic studies with glutaraldehyde-fixed grids.

d. Routine examination of bacterial and mycotic cultures.

e. Routine staining and microscopic analysis of fixed smears.

f. Final packaging of specimens for transport to diagnostic laboratories for additional testing. Specimens should already be in a sealed, decontaminated primary container.

2. Activities involving manipulation of untreated specimens may be performed in BSL-2 facilities, but with more stringent BSL-3 work practices. All specimen manipulations should be carried out in a certified biological safety cabinet. Laboratory workers should wear protective equipment, including disposable gloves, solid front gowns with cuffed sleeves, eye protection and respiratory protection. Acceptable methods of respiratory protection include a NIOSH approved filter respirator (N-95 or higher); or powered air-purifying respirators (PAPRs). equipped with high efficiency particulate air

continued on page 5

CDC Biosafety Guidelines for SARS continued from page 4

(HEPA) filters. Personnel who cannot wear fitted respirators because of facial hair or other fit-limitations should wear loose fitting hooded or helmeted PAPRs. Centrifugation should be carried out using sealed centrifuge cups or rotors that are loaded and unloaded in a biological safety cabinet. These activities include:

a. Aliquoting and/or diluting specimens

b. Inoculation of bacterial or mycological culture media.

c. Performing diagnostic tests that don't involve propagation of viral agents in vitro or in vivo.

d. Nucleic acid extraction procedures involving untreated specimens

e. Preparation and chemical- or heat-fixing of smears for microscopic analysis.

3. The following activities require BSL-3 facilities and BSL-3 work practices:

a. Viral cell culture

b. Initial characterization of viral agents recovered in cultures of SARS specimens.

4. The following activities require Animal BSL-3 facilities and Animal BSL-3 work practices:

a. Inoculation of animals for potential recovery of the agent from SARS samples.

b. Protocols involving animal inoculation for characterization of putative SARS agents.

Packaging, shipping and transport of specimens from suspect and probable SARS cases must follow the current edition of the International Air Transport Association (IATA) (http://www.iata.org/dangerousgoods/index) and the US Department of Transportation US DOT 49 (http://hazmat.dot.gov/rules.htm). Step-by-step instructions on appropriate packaging and labelling can be viewed at this CDC website (http://www.cdc.gov/ncidod/sars/pdf/packingspecimens-sars.pdf).

SARS WEBSITES

The following websites contain the latest information about SARS:

http://www.doh.wa.gov/sars.htm

http://www.cdc.gov/ncidod/sars

http://www.cdc.gov/od/ohs/biosfty/bmbl4/bmbl4toc.htm

Waived Testing Helpful Hints

In the last issue, we discussed Good Laboratory Practice (GLP) #6: Run controls often. Here is GLP #7: Repeat the test if there is a problem.

If you suspect a problem when performing a test:

√ Repeat the test

√ Check for contaminated reagents

√ Check kit storage temperature

√ Verify that all steps of procedure were completed

√ Call the manufacturer's 800 number for assistance

√ **STOP** all testing until the problem is resolved and inform the provider

√ Record the problem and resolution on a log

NOTE: Check this spot in future editions of Elaborations for more helpful hints with waived testing.

Calendar of Events

PHL Training Classes:

Advanced Hematology
April 30 Shoreline

Shipping & Handling of Biohazardous Materials
May 6 Shoreline

Urine Sediments
May 14 Shoreline
May 15 Shoreline

WSSCLS/NWSSAMT Spring Meeting
April 24-26 Pasco

Northwest Medical Laboratory Symposium
October 22-25 Olympia

10th Annual Clinical Laboratory Conference
November 10 Seattle

Contact information for the events listed above can be found on page 2. The Calendar of Events is a list of upcoming conferences, deadlines, and other dates of interest to the clinical laboratory community. If you have events that you would like to have included, please mail them to ELABORATIONS at the address on page 2. Information must be received at least one month before the scheduled event. The editor reserves the right to make final decisions on inclusion.

ELABORATIONS
Washington State Department of Health
1610 NE 150th Street
Shoreline, WA 98155